

Remarks

Claims 1-10 and 12-15 are now pending in this application. Claim 1 has been amended to incorporate the recitation of prior dependent claim 11 and thus claim 11 has been canceled. By adding the recitation of claim 11 into claim 1, independent claim 1 now expresses that the surface coating of aggregate material has a surface morphology which enhances bonding of surface treatments to the panel. This is the reason for the aggregate coating. Absent the aggregate coating, an acceptable bond between surface treatments and the surface of the raw radiation cured coating is not obtained. As noted in the prior amendment in connection with the amendment to then claim 11, support for this amendment is found on page 35 in paragraph [106].

A clarifying amendment, that does not change the scope of the invention as defined in the application and as presented in the prior response, also has been made to claims 1 and 14. In particular, the phrase "high energy" has been inserted before "radiation" simply to make it clear that the curing mechanism is UV or electron beam radiation as described in the application.

Thus, with the amendment the number of pending claims have been reduced and no new issues have been presented, since the subject matter claimed has not been altered. Entry of the amendment under Rule 1.116 is requested as the amendment reduces the issues for any appeal and places the claims in better form for appeal.

Applicants also request rejoinder of method claims 14 and 15. By virtue of the recited dependency, these method claims have the same fundamental scope as claim 1. Provided that applicants substantiate the patentability of claim 1, these method claims should be joined in accordance with M.P.E.P. §821.04.

At the outset, applicants would like to thank Examiner Ruddock for the courtesies she extended to their undersigned representative in the recent interview. The points supporting the patentability of the pending claims that were discussed during the interview will be reiterated in the following discussion addressed to the rejections of record.

Rejection of Claims 1, 2 and 7-12 under 35 U.S.C. § 103(a) (O. A. Paragraph 4)

Claims 1, 2 and 7-12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Colbert (U.S.2004/0154264) in view of Takahashi et al., (U.S. 2003/0113520). Applicants respectfully traverse this rejection.

Colbert desires a gypsum wallboard with a smooth, homogeneous surface, *i.e.*, “a high quality finish” (paragraphs [0011] and [0041]). Colbert applies the coating evenly to get a uniform thickness “not sensitive to surface irregularities” (paragraph [0045]). The coating described by Colbert is intended to approximate the physical properties, especially the color and aesthetic appearance, of the joint compound (see for example the last sentence of the Abstract and paragraph [0031]) used when finishing a wallboard surface in conventional construction practices. Colbert does not make obvious the application, to a gypsum wallboard surface, of a water-proof coating having an aggregate coating, designed to provide a rough texture amenable to bonding various surface treatments, as required by the pending claims.

In particular, Colbert describes a method of making a gypsum wallboard, such as a conventional wallboard having paper facers, wherein before the drying oven in the conventional manufacturing operation, a thin, smooth coating of a joint compound-like material is applied to one surface of the “wet” wallboard and the coating and wet wallboard are both dried in the oven. The resulting wallboard is thus suitable for applications requiring the high quality of Level 4 or Level 5 finishing (see paragraphs [0076]-[0079]).

The Office Action refers to Colbert’s use of calcium carbonate and perlite fillers. While Colbert does not specifically identify the particle size of these filler materials, as is well known in the prior art, to obtain the high quality finish that Colbert desires, these materials would be supplied in sufficiently small particle sizes so that they could be homogeneously distributed throughout the coating and not interfere with the high quality finish objective. Perlite, in particular, is used to reduce the coating weight (see paragraphs [0015], [0016], [0058] and [0060]). Colbert does not make it obvious to use perlite (or any other filler material) as a

surface treatment of a water proof, high energy radiation cured coating, *e.g.*, UV cured coating, to make the surface suitable for bonding surface treatments, such as ceramic tiles.

In the rejection the examiner also alludes to paragraph [0039] of Colbert and asserts that “UV radiation resistance is obtained by exposing the overall surfaces to UV wavelengths.” As discussed at the recent interview, Colbert performs the UV exposure of the board as a test – not as a treatment – to see how the coloration of the board and coating is influenced by UV exposure. Thus, paragraph [0039] only describes an assay or test for assessing the “UV radiation resistance” of a board. Again, “UV radiation resistance” in the context of Colbert’s disclosure is simply the ability of the board to resist discoloration, *e.g.*, yellowing, on exposure to UV radiation. See also paragraphs [0040]-[0043]. The board is not subject to UV radiation for any reason associated with its manufacture. Colbert maintains that the visual appearance of his coated board is more stable than the prior art construction (see paragraph [0043]).

Applicants submit that the disclosure of the testing of a gypsum board for discoloration upon UV exposure does not provide a basis for combining the Colbert patent disclosure with other disclosures (as apparently is the reason for the reference to this aspect of Colbert) that may include some reference to resins that cure by exposure to radiation such as UV radiation. Accordingly, applicants submit that there is no basis, aside from an improper hindsight evaluation, supporting the combination of Colbert with the secondary Takahashi reference. The disclosure in paragraph [0039] of Colbert does not provide that support.

The secondary reference, Takahashi, is directed to a stand-alone decorative film or sheet adapted to be affixed to an underlying structure, generally through an adhesive. In contrast, the claimed invention requires that the radiation curable formulation be “cured in place on the fibrous facing material.” While the Office Action discounted this limitation as a method step, as discussed at the recent interview, this limitation inherently produces an integral bond between the fibrous facing material and the cured formulation. It is this structure that differs fundamentally from a separately, adhesively applied sheet or film.

In particular, Takahashi is directed to a decorative material (decorative film or sheet) comprising a substrate (typically a film-like material, see paragraphs [0058] and [0074]), a print

layer on the substrate, a protective layer on the print layer and a stress relaxing layer, which acts as a primer, interposed between the print layer and the protective layer. This combination of elements is referred to as the decorative sheet 1 in paragraph [0104] of Takahashi. By using the primer layer, the problem of an insufficient adhesion between the print layer and protective layer apparently is corrected. This problem is encountered when the protective layer is formed with the necessary hardness to function properly as a protection (e.g., to resist staining). The protective layer is conventionally a radiation cured resin, such as an electron beam-cured resin. Substrates contemplated for the decorative material include mainly paper and plastic films (again see for example paragraphs [0058], [0059] and [0126]). In formulating the “ionizing radiation-cured resin” for coating, Takahashi uses a solvent (see paragraphs [0098], [0099] and [0103]).

Takahashi discloses that the decorative sheet 1 itself can be applied to other substrates, including a gypsum board, by using an adhesive to fix the sheet to the substrate as described in paragraphs [0105]-[0106] and shown in Figures 2 and 3 (apparently a hot melt, or hot lamination also is contemplated, but not described in any detail – see paragraph [0110]). At the time the decorative sheet 1 is bonded to such a substrate, however, the protective layer of that sheet has already been cured. Thus, Takahashi does not suggest or describe a gypsum panel in which a radiation cured coating of a radiation curable formulation is cured in place on the fibrous facing material as required by claim 1 and as inherent in the method of claim 14.

As a consequence of this difference, the bond between the decorative sheet and the substrate in Takahashi generally relies on the use of an adhesive, while in the present invention a bond between the coating and facer is obtained because the radiation curable formulation is cured on the fibrous facing material that is adhered directly to the gypsum core. No separate adhesive is involved linking the radiation cured coating to the fibrous facing material of the gypsum panel. The Takahashi approach also is much more cumbersome to implement as it requires the separate steps of making the decorative sheet and then applying that sheet to a substrate, while the present invention can be performed in real time as an in-line operation of the conventional manufacturing operation.

Nothing in Takahashi or Colbert suggests that a radiation curable formulation could or should be cured in place on the fibrous facing material that itself is adhered directly to the gypsum core by penetration of the gypsum.

Takahashi also fails to suggest or disclose the method of forming the gypsum panel of claim 1 as defined by new method claims 14 and 15.

Rejection of Claims 3-6, and 13 under 35 U.S.C. § 103(a) (O.A. Paragraph 3)

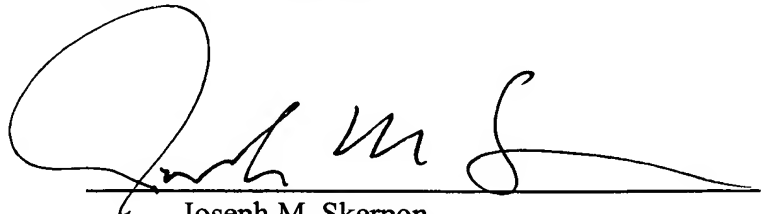
Claims 3-6 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Colbert (U.S.2004/0154264) in view of Takahashi et al., (U.S. 2003/0113520) and further in view of Randall et al., (U.S. 2003/0203191). Applicants respectfully traverse this rejection.

The Randall '191 publication does not remedy any of the deficiencies of the primary or secondary references as described above and does not provide a separate basis for their combination. As a result, these claims are patentable for the very same reasons advanced above with respect to the rejection of claim 1 and others.

When the invention as defined by the pending claims is properly considered, there is no *prima facie* case for the obviousness rejections set forth in the Office Action. Thus there is no valid basis for finding the pending claims unpatentable based on the cited documents.

For the reasons given above, the rejections of the pending claims under 35 U.S.C. §103(a) are improper and the rejections should be withdrawn. Reconsideration and the allowance of the pending claims are thus respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. M. Skerpon', is written over a horizontal line.

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